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Organized 1927

Devoted to the interests and advancement of those engaged in school health activities and the service rendered by them

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THE JOURNAL OF SCHOOL HEALTH

Devoted to the interests and advancement of school health service and instruction. Your participation by membership is solicited.

Vol. XXX FEBRUARY, 1960 No. 2

EMOTIONAL OBSTACLES TO HEALTH PROGRAMS*

DANA L. FARNSWORTH, M.D.

Henry K. Oliver Professor of Hygiene and Director of University Health Services, Harvard University and Radcliffe College

It is difficult to imagine what life would be like in our society without the advances that have been made in the last century in the alleviation of pain and suffering and in the promotion of health. One critic of the present has expressed a strong wish to return to conditions of the Victorian era but "with penicillin." Those who spend their professional lives working for improved standards of private and public health are constantly frustrated by the efforts of those who embrace health fads and fancies, whether these be organic gardening, yogurt and molasses, or honey and vinegar. An equally large group of our citizens see suspicious motives in those who work for the improvement of the health of all of us.

One symptom of a disturbed society is the presence in it of numerous people who think and act on the basis of some fixed notion, a concept of themselves, or of some element in their environment, that does not take into sufficient consideration the many other factors which should give rise to reasonable attitudes. One of my favorite definitions describes one of these persons—a fanatic is a person who redoubles his energy after he has lost sight of his goal.

Those persons who see sinister meaning in new health programs that arise from scientific progress are of concern to all of us. Without constant progress in health promotion and prevention of illness our social system as now organized would be in considerable peril; therefore, any interferences that stand in the way of measures designed to improve health are of interest to those of us who are trying to help develop those measures.

During the past half century three major public health advances have become nearly universal which have been of tremendous help to our people in cutting down the incidence of illness. I refer to the pasteurization of milk, the chlorination of public water supplies, and immunization against smallpox, diphtheria, and other infectious diseases. Although careful experimentation was made before each of these programs was introduced for use by the general public, strong objections to all of them arose on the part of various groups. Even now the opposition is not

*First given as a Commencement Address at the Forsyth School for Dental Hygienists, Boston, Mass., June 11, 1959 and subsequently published in the Harvard Dental Alumni Bulletin, Vol. 18, No. 4, October, 1958. Now reprinted by permission in a revised form.

For many ideas in this paper I am indebted to the Committe on Social Issues of the Group for the Advancement of Psychiatry. A Symposium on "Scientific Progress, Health Programs and Group Opposition" is soon to be published by this organization.

entirely silent. Although smallpox is a completely preventable disease, we still have occasional outbreaks in the United States.

The opposition to such health measures centers around a very few basic issues. Among these are the arguments that there is a danger to the individual who is involved, that health problems are personal in nature, and that any legislation regarding them is a violation of the constitutional rights of the individual. Some persons consider such measures a violation of their religious freedom. Sometimes the statement is made that "poison" should not be added to water or food supplies, that the "natural" state of milk should not be altered by heating because it would thereby make it unfit as a food, or that "foreign" material should not be injected into the body. A few physicians insist, entirely without proof, that adding fluoride to the water supplies will cause "allergies and arthritis."

In recent years three other issues of major importance to the American public have brought into the open strong feelings about them. Our purpose in looking at them today is not to take sides on these issues, but to look at some of the characteristics of the strong emotional forces brought to bear for or against certain health measures.

The first of these involves an attempt on the part of certain mental health workers to improve the lot of the mentally ill in the territory of Alaska. For many years any person who became ill in that territory could receive treatment in a hospital only after he had been taken before a jury and tried in a criminal proceeding and was adjudged "guilty" of insanity. If the jury considered him "innocent" he was turned loose regardless of his condition. If he was adjudged guilty, he was placed in the local jail and subsequently taken in the custody of a United States Marshal to a private mental hospital in the United States. Obviously, such a procedure does not do justice to the needs of any person who becomes ill.

In 1955 appropriate governmental officials developed a plan to help provide Alaska with its own hospitals for the care of the mentally ill. Suitable legislation toward that end, including a revision of the commitment laws, was introduced into the Congress. It seemed like a routine bill when introduced, but in one of the committee hearings before a Senatorial committee, opponents to the act stated quite categorically that this was an attempt to set up a "Siberia, U.S.A.," where political enemies could be sent under the guise of mental illness. In other words, these people feared that the mental hospital would become a concentration camp. Some of the opponents assailed the proposed legislation as a communist conspiracy. Others described it as a Vatican plot. Still others insisted that it was fomented by "Zionists" in order that they might label anti-Semites as mentally ill and get them out of the way. As a result of such objections by a number of people, the bill was defeated.

In the course of the heated discussion on this issue, some persons even indicted the whole mental health movement. Mental health was said to be furthered by the same people who had "swept Salk polio vaccine into the White House" and was favored by "Marxist minority leaders." The Alaska Mental Health Bill was supposed by some to be a device to put patients to death under the advice of skilled psychiatrists. Psychiatrists were represented as being foreign born for the most part, and

most of them (up to 80%, one speaker said) educated in Russia. Mental health was further portrayed as one of the ways of weakening our people so that they would show less resistance to communism. It was also associated, unfavorably, with UNESCO, the World Federation for Mental Health, and other similar groups that work for world-wide human welfare.

An equal degree of emotion was stirred up in New York City a few years ago when one of the educational institutions instigated a research program designed to develop more effective methods for the selection of school teachers. The opponents of such research work indicated that the purpose of any selection procedures adopted would be to discriminate against minority groups of various kinds. The scientific and personal intergrity, as well as the objectivity and patriotism of those connected with the project were assailed. Pressure finally became so high that the institution concerned had to stop the research project in the middle of its effort, the team disbanded and all research material was impounded.

The controversy that is of greatest interest to most communities in America is between those who are for or against the introduction of fluoride into the public water supply of our towns and cities to prevent tooth decay, especially in children. Nearly twenty years ago evidence began to accumulate that dental caries occurs with about 60% less frequency in areas where there is sufficient fluoride in the water than in those in which fluoride is very slight or absent. One of the first wide-scale experiments designed to test whether or not fluoridation was important or effective in the reduction of tooth decay was done in the cities of Newburgh and Kingston, New York. Both had very little fluoride in their water supplies. One of them agreed to add fluoride to the optimum level for the prevention of tooth decay while the other agreed to serve as a control area.

The publicity about the addition of fluoride to the water in the experimental city was begun in March, 1944, but the fluoride was not actually added until 14 months later. During this interim period, before any fluoride had actually been added to the water supply, the health officers of the city received many complants of digestive disturbances, discoloration of sauce-pans, and even a cracked dental plate—all of which were supposed to be caused by the "fluoride water." The experiment was, as you know, successful in demonstrating the usefulness of fluoride in preventing tooth decay and no harm came from the experiment.

Unfortunately, the opponents of fluoridation have been successful in more than half the communities in the United States where the question has been voted on by the citizens (201 to 131 up to April 15, 1958).

In the campaign against fluoridation many arguments have been used, prominent among them being these: (1) that the introduction of fluoride into the water would be prejudicial to health, to religious rights, and to other rights guaranteed by the Constitution, (2) that fluoridation is a mass medication regardless of the needs or wishes of the people, (3) that fluoride is a poisonous waste from aluminum manufacture, and this is one of the ways devised by manufacturers to get rid of it, (4) fluoride is a powerful poison that gradually deprives the body of calcium and hence will produce ill effects later on, and (5) that fluoridation has for its real purpose, not benefitting children's teeth, but lowering the resistance of the masses to domination and control, and hence to loss of liberty.

One person had indicated publicly that infinitesimal amounts of fluoride will gradually reduce the individual's power to resist domination by slowly poisoning and narcotizing an area of brain tissue, and that this will make him submissive to the will of those who wish to govern him.

As reported in the *New York Times Magazine* (May 25, 1958), investigations at one Massachusetts city which voted against fluoridation revealed that those with the higher education, occupation and income status usually favored the procedure. Those with young children tended to favor it. The "pro's" accepted scientific organization as reliable sources of information while the "anti's" with less education tended to reject scientific authority. The "anti's" were more impressed by deviant scientists than by organized groups, and their attitudes were marked by a "pervasive attitude of suspicion" coupled with a "fear of conspiracy" on the part of "eggheads" in general.

The success of the "anti's" in this city was attributed to three factors. First, their arguments were understandable and easy to grasp; second, their weaknesses were difficult for laymen to pin down; and third, their arguments drew on suspicion of scientists, the fear of conspiracy and the tendency to perceive the world as menacing. It should be added that all too often the "pro's" do not work hard for their point of view.

I recently had the privilege of viewing an exhibit of newspapers, pamphlets, and other matter illustrative of the way pressure groups act to oppose health measures based on scientific progress. There is a remarkable similarity in the approach as well as in the kinds of subjects in which these people become interested. Not only do the three subjects which I have already briefly discussed come under attack, but interest is shown in anti-vivisection measures, various discriminatory movements, supernationalistic groups, and segregation of races.

In a society such as ours, in which the scientist should have a rather high prestige, one would think the opposition to health programs based on sound scientific findings would be slight. On the contrary, it is not unusual for such programs to meet with intense and determined opposition by groups of many kinds. It would be unfair and incorrect, even unfortunate, to classify the members of such groups as malevolent, ignorant, or belonging to the "lunatic fringe." Some of these individuals use highly rational arguments and, since many of them occupy honored places in our social institutions, their arguments lend weight and prestige to the irrational or even dishonest reasons for opposition. A sincere and impassioned minority group may even be very helpful in pointing our serious flaws in otherwise well designed health measures.

Rational opposition to health legislation often stems from scientific conservatism. Most large scientific societies are reticent about endorsing public health measures until the weight of evidence that they will be beneficial is very strong. The fact that many of our most effective preventive medicine procedures were originally opposed by medical authorities should not obscure the fact that a great many more measures that were harmful have been successfully opposed.

Inertia and apathy, as well as fear, tend to keep social change at a slow pace. The incitements to change are so numerous at present that the public is naturally somewhat confused as to what is important and what is not. Communities cannot react to all stimuli or all requests for

action, else they would be completely demoralized. Any major change may help some people and hurt others. Time is required to achieve improvement without gross injustice to some persons.

Some health programs meet with strong opposition because their ultimate effects would change the power structure in a given community. Prejudices of the people may be aroused to prevent certain legislation. A single measure may be singled out for opposition because it was part of an "international Jewish conspiracy" or had been "engineered by the Roman Catholic Hierarchy" as part of its campaign "to destroy our freedom under the Bill of Rights," or even that it was a communist plan to weaken the people and make them "atheistic slaves." A variation now prevalent in the South is that the plan, whatever it may be, was "engineered by Northerners."

The fact that so many health programs must be carried out for all the people, or none, brings up the unhappy word "compulsion," a word which brings associations which most of us in a democracy automatically dislike. On issues involving compulsion, extreme conservatives and liberals may find themselves aligned together to their mutual embarrassment, delight, or astonishment.

Whatever may be the health program under consideration, widespread education regarding its merits and its effects seems desirable, but, as in most matters affecting the emotions, knowledge is not enough. Leadership by those in authority, or by those who are experts in special fields, is necessary. When the leaders of a community are lukewarm or antagonistic to a health provision in the law, and consequently make no effort to enforce it legally, group resistances usually become intensified. The events at Little Rock during the past few years constitute an excellent example of popular confusion when authorities are opposed or divided.

Negative leadership may come from those who are motivated by factors of personal power, prestige or gain, or from those who are moved to action by powerful anxieties or hostilities, the true sources of which are subconscious. They are often individuals of great ability and intelligence, with the capacity to arouse intense fervor and passion in others. Some of them will go to great lengths, even to severe physical and emotional suffering, for their causes.

The same groups of people may be involved over and over again in opposition to a wide variety of programs, some related to health, some not. One national group is on record as opposing not only fluoridation, but also vaccination, immunization, pasteurization, vivisection, drugs, narcotics, alcohol, tobacco, tea, coffee, cocoa, cola drinks, and compulsory medication.

At the present we note growing evidence of increased opposition to mental health programs and to psychiatry itself, even though there is also a very gratifying growth of interest in those fields. Informed criticism is vital to the sound growth of the various disciplines which contribute to our knowledge of human behavior. Opposition based on ignorance and false information does great harm. The task of gaining wide public awareness of the goals of the social sciences, or the behavioral sciences as they are sometimes called, is of the utmost importance. During the past few decades the growing disparity between the knowledge which we utilize in controlling our environment, and that with which we

control ourselves, has been constantly increasing. If we turned our attention to learning about ourselves with a fraction of the energy we display in developing agents with which we can destroy one another, it is reasonable to hope that the disparity could be lessened. But it must be admitted that the possible complications of research in the fields of personality development and in the improvement of human relations are numerous indeed.

Some persons object to intensive studies of personal motivation, or the effects of institutions on individuals, because they constitute an undesirable invasion of privacy of the persons who are subjects of study. Others believe that talking with young persons about their innermost thoughts and strivings will of itself produce emotional illness. Certain research workers may stress the desirability of reducing the study of human behavior to those variables which can be expressed in quantitative terms. Others are critical of such limitation, pointing out that many of the most significant influences determining how a person may conduct himself are based on very subtle factors recognized only by personal interviews and different for every individual.

Pertinent material from many disciplines is necessary for the optimum understanding of human behavior. Those that seem of greatest relevance to us at present include biostatistics, sociology, anthropology, psychology and psychiatry, including psychoanalysis. Each particular field or method of study gives rise to a specialized vocabulary which for a time may impair or attenuate communication between the varying groups. One of the urgent needs now facing us as a society is the development of a common vocabulary concerning matters of personality and inter-personal relations, enabling experts of different disciplines to work together on their common problems rather than fighting over their differing philosophies.

Canon Raven of the British Royal College of Chaplains states (*Saturday Review*, June 7, 1958) that there are certain defects in our way of life which render our pursuit of health largely frustrated and incomplete. He suggests that the province of medicine be extended to include the study of diseases of corporate life, and that sociology should be as much of a contributor to medicine as psychology. He raises the question of how difficult it is for a young person to go into certain types of business without losing his moral integrity. He does not identify the occupations he had in mind since each person can make his own list and these will vary in different communities.

There are literally hundreds of community customs that have an emotional health component. Failure of communities to provide adequate schools and recreational facilities for their children, subsidizing athletes, toleration of shady politics, gambling by church groups, and undue reliance on passive entertainment are only a few of them. For every newspaper like the *Christian Science Monitor* or the *New York Times*, we see many more that rely for their sales on excessive dramatization of the news achieved by distorting it to the point of falsehood. Dignified but interesting and reliable radio and television stations have a hard time competing with those stations whose programs lack content and feature offensive and misleading commercials. It is our duty as responsible and thoughtful citizens to try to make good taste and intelligence appreciated and rewarded when our editors and station directors use them.

To retaliate with hostile and emotional countercharges against those who attack health programs with irrational and illogical arguments is a great mistake. What the fanatic and demagogue cannot tolerate without loss of status is the plight of being thoroughly understood. The best way to achieve success in health planning is to advance with logic, dignity, and enthusiasm our own causes that have the support of scientific experiment and by cultivating a tolerant understanding of those whose needs for public notoriety are not in accord with the best interests of the community.

* * * * *

AN EXPLANATION OF THE A.S.H.A. TUBERCULOSIS PROJECT

J. Arthur Myers, M.D.

Chairman of the Committee on Tuberculosis

The Committee on Tuberculosis of the American School Health Association consists of 15 members of whom five are past-presidents of the National Tuberculosis Association. Two have been president of the American Public Health Association, one vice-president of the American Trudeau Society, one vice-president of the National Tuberculosis Association, and the others have held high positions, including presidencies of their state and local Tuberculosis Associations. They represent all parts of the United States, including both our white and colored citizens. After trials of various procedures, much deliberation and careful consideration, this committee concluded that certification of schools with reference to tuberculosis control work in progress would justify its best efforts.

The American School Health Association has more than 7,000 members participating in or supporting good health activities throughout the schools of America. The Committee on Tuberculosis early decided that rather than attempt to operate an independent program, it preferred to combine its efforts and work closely with state and large municipal Tuberculosis Associations.

When such an Association expresses its desire to adopt the certification of schools project, a sub-committee of physicians of the Committee on Tuberculosis of the American School Health Association is appointed for that state to promote the certification of schools project with the State Tuberculosis Association to the nth degree. Moreover, the members of the American School Health Association, working in various capacities in the schools in that particular state, are requested to lend every possible assistance to the certification of schools program. Some state departments of health also actively participate. When a school or system of schools meets the qualifications for certification, certificates are signed by the President and Executive Secretary of the American School Health Association, the Executive Director of that State Tuberculosis Association, the Chairman of that state's subcommittee and in some states an official of the Health Department before they are officially issued. The joint efforts of these two organizations are now working harmoniously in several states and thousands of certificates are displayed on the walls of schools which have earned them.

REPORT OF COMMITTEE ON TUBERCULOSIS AMERICAN SCHOOL HEALTH ASSOCIATION

Presented before the Governing Council, October 19, 1959
Atlantic City, New Jersey

The year three new members with long and extensive experience were appointed to the Committee on Tuberculosis—namely, Dr. Max Durfee, Oberlin, Ohio; Dr. L. S. Jordan, Granite Falls, Minnesota, and Dr. J. A. Stocker, Springfield, Illinois. The committee now consists of 15 physicians each of whom has had decades of experience in tuberculosis work. A summary of the work of the committee for 1959 follows:

1. In April, three of the papers which were presented in Philadelphia on May 12, 1958 were published in the *Journal of School Health.* These were supplemented by a paper entitled, "Knowledge About Tuberculosis Held by High School and College Students" by H. Frederick Kilander, Professor of Education, New York University.

2. Your committee arranged a program which was presented on May 24, 1959, in Chicago during the annual meeting of the National Tuberculosis Association. Dr. Fred V. Hein, Past-President of the American School Health Association, presided.

Arrangements for this meeting were graciously made by Mr. William F. Roberts and Mr. Jack Gleason, Administrative Assistants to the Managing Director, National Tuberculosis Association. Approximately 180 persons attended.

3. Arrangements have been made for an excellent program during the meeting of the National Tuberculosis Association in Los Angeles in May, 1960.

4. Meeting of Committee. On the afternoon of May 24, 1959, a meeting of members of the Committee and representatives of State Tuberculosis Associations which are certifying schools was held in Chicago. The fourteen members present discussed and recommended various items for the certification of schools project. Qualifications for certification remained unchanged, with the certificate indicating that the award was granted by the American School Health Association, the State Tuberculosis Association, and in some places, the State Department of Health.

5. Your committee is pleased to announce that three more states; Arkansas, Georgia, and Missouri, adopted the school certification project this year.

The *Arizona* subcommittee of the Committee on Tuberculosis of the American School Health Association consists of the following physicians:

Richard O. Flynn, M.D., Chairman	Tempe
O. J. Farness, M.D.	Tucson
Harold E. Kosanke, M.D.	Tucson
Lloyd K. Swasey, M.D.	Phoenix
B. L. Snyder, M.D.	Phoenix

Miss Helen E. Watkins, Executive Director, Arizona Tuberculosis and Health Association, reported 10,149 tests administered with 573 (5.7 per cent) reactors in schools from kindergarten through 12th grade, and

including 172 personnel members. Twelve schools qualified for Class A and four for Class B certificates.

In *Arkansas*, Mr. Robert H. Schnee, Executive Director, Arkansas Tuberculosis Association, stated that a committee has been appointed to designate the members of the Arkansas subcommittee of the Committee on Tuberculosis of the American School Health Association. "We have several schools in which tuberculin testing has been done and have had many inquiries regarding the certification program."

In *Chicago* and *Suburban Cook County* the subcommittee consists of:

JULIUS B. NOVAK, M.D.	Chicago
JOHN B. HALL, M.D.	Chicago
E. A. PISZCZEK, M.D.	Hinsdale
MAYA UNNA, M.D.	LaGrange
IRWIN A. SMITH, M.D.	Northbrook

Mr. John E. Egdorf is Executive Director, Tuberculosis Institute of Chicago and Suburban Cook County. Dr. Novak, Medical Director, said, "The tuberculin testing program in Chicago and Cook County is rapidly gaining momentum. During the last school year we have tested in 186 schools, both public and parochial, in Chicago and Cook County. The total number tested was 43,364. This was done at the high school and elementary school levels." The overall percentages of reactors was 9.4.

In the 24 Chicago schools (15 public and 9 parochial) all grades were included and each child received 0.1 milligram of original tuberculin (OT). In the public schools, 14,450 children were tested of whom 17.5 per cent reacted. In the nine parochial schools, 3,019 were tested and 12 per cent reacted.

Testing was done by the Tuberculosis Institute staff, the Cook County Health Department, Suburban Cook County Tuberculosis Sanatorium District by school physicians and by local physicians.

Dr. Novak said: "For the years 1959 and 1960 we have made almost duplicate program plans. It is my personal feeling that in the future we are going to have a considerable expansion of the amount of tuberculin testing that will be done in Chicago and Cook County."

In *Georgia*, the subcommittee consists of:

ELEANOR PETRIE, M.D.	Decatur
CARL C. AVEN, M.D.	Marietta
CLARA B. BARRETT, M.D.	Atlanta
JOHN H. GROSS, M.D.	Rome
R. J. WALKER, M.D.	Macon

Mr. Carl Fox, Executive Director, Georgia Tuberculosis Association, said, "During the past year the Tuberculin Testing Certification program was presented to the Board of Directors of the Georgia Tuberculosis Association. It was approved by the Board and a committee was recommended to develop the details.

This committee has representatives of the following: the Georgia Tuberculosis Association; Medical Association of Georgia; State Department of Health; State Department of Education; State Tuberculosis Hospital.

The Georgia Sub-Committee met for the first time on July 22, 1959, and recommended that a Production Committee be formed to develop suitable material for this program in Georgia. As of today, September

25, 1959, the Production Committee is working on materials and will report back to the Sub-Committee next month. Six schools were certified last year."

In *Illinois*, the subcommittee consists of:

J. A. Stocker, M.D., Chairman, St. John's Sanatorium	Springfield
George C. Turner, M.D.	Oak Forest
Marie A. Hinrichs, M.D.	Chicago

Mr. E. J. Gross, Assistant Executive Director, Illinois Tuberculosis Association, said, "Local participation remains limited due to our policy of granting certificates of all four high school grades plus personnel. Some 40 schools received certificates this year, which brings our total to approximately 200 schools over the past few years. Our program committee will meet tomorrow and consider broadening the scope of certification to include lower grades. This, along with a new certificate and increased tuberculin testing, should raise our number of recipients in the future."

In *Iowa* the subcommittee consists of:

Ralph E. Smiley, M.D., Chairman	Mason City
James B. Fraser, M.D.	Des Moines
Gordon E. Rahn, M.D.	Mount Vernon
Anthony Owca, M.D.	Centerville

Since 1954, the Iowa Tuberculosis and Health Association has had a tuberculin reactor registry for all age groups on a county-wide basis. This was the first register of its kind in the county.

Mr. Paul Williamson, Executive Director, Iowa Tuberculosis and Health Association, reported that during the four years, beginning in 1955, the certification of schools project has been in effect, 35 counties have participated, in 48 tuberculin testing programs leading to school certification. There were 184,287 students from 1,283 schools tested of whom 4,538 (2.8 per cent) reacted to tuberculin.

There were 10,618 personnel members tested, of whom 1,987 (18.7 per cent) reacted.

There were 11,714 family members and relatives of those students and school personnel members who reacted to tuberculin included in the testing program, of whom approximately 2,500 (21.2 per cent) were reactors.

Of the 1,283 schools included in the program, 1,027 (80 per cent) received award certificates. Of those not certified, two out of three failed because of non-participation of one or more personnel members.

In *Minnesota* the subcommittee consists of:

L. S. Jordan, M.D., Chairman	Granite Falls
Willard Peterson, M.D.	Willmar
R. B. J. Schoch, M.D.	St. Paul
Mario Fischer, M.D.	Duluth
F. G. Gunlaugson, M.D.	Minneapolis

Mr. Josiah G. Neal is Managing Director of the Minnesota Tuberculosis and Health Association. Mr. Thomas F. Mulrooney, Program Director, said, "In the years since the American School Health Association's certification of schools program was inaugurated in our state, a total of 3,457 certificates have been awarded to schools throughout the state. The total for 1958 was 283 certificates earned by schools in 21 counties.

So far this year, 1959, 247 certificates have been issued to schools in 20 counties.

While the Minnesota Tuberculosis and Health Association has consistently promoted the certification of schools program, there have been difficulties in making this a state-wide project since in many of the counties, schools have been unable to qualify because they have set up their Mantoux testing programs on a selected grades basis rather than on a total school population.

Superintendents of at least three sanatoriums in the state not only recommend that all grades be included in school testing programs, but are most active in organizing and conducting school surveys.

An increasing number of school boards throughout the state are requiring that their personnel have annual Mantoux tests, or, if they are tuberculin reactors, have an annual X-ray film of the chest.

The Minnesota Tuberculosis and Health Association program committee, has definitely gone on record to promote certification of schools as the major part of the state-wide tuberculosis case-finding program.

This year 38 schools in the city of St. Paul have earned certificates. Hennepin County, which includes the city of Minneapolis and surrounding rural areas has embarked on an ambitious school testing program. They awarded six Class A and three Class B certificates. Health officials in Minneapolis have indicated a definite interest in school certification and they are hoping through intensive education to obtain excellent participation on the part of personnel as well as of school children.

The Minnesota Tuberculosis and Health Association hopes in the near future to be able to announce as one definite program goal: "An American School Health Certificate on the wall of every school in Minnesota."

In *Missouri* the subcommittee consists of:

C. A. Brasher, M.D., Chairman, Missouri State Sanatorium	Mount Vernon
Florence MacInnis, M.D.	Kansas City
Glenn Turner, M.D.	Springfield
Walter Gray, M.D.	St. Louis
A. J. C. McCallum, M.D.	Aurora
Eugene J. Swartz, M.D.	Springfield

The State Tuberculosis Association with Mr. Donald E. Pratt, Executive Director, the state subcommittee, the State Department of Health, the State Medical Association and other groups are united in a state-wide certification of schools program. A county was selected where the various organizations have voted unanimously in favor of the project, to be conduced during a three week period in November. It is anticipated that from there workers will proceed from county to county with a view to having all Missouri schools certified within the shortest possible time.

The *St. Louis* subcommittee consists of:

Wilbur A. Mullarky, M.D., Chairman
Walter C. Gray, M.D.
Norman Mistachin, M.D.

The St. Louis Academy of General Practice in cooperation with the St. Louis County Tuberculosis and Health Society and the St. Louis County Health Department started a program of tuberculosis control in the schools in 1952. This is a public service on the part of the Academy

members. Since 1952, they have administered 251,567 tuberculin tests to school children of whom 9,657 (3.8 per cent) reacted. By seeking sources of infection in children among adult associations 10 times more cases of clinical tuberculosis have been found than by any other procedure including mass X-ray surveys.

In *Montana* the subcommittee consists of:

JOHN A. SCHAEFFER, M.D., Chairman	Billings
JOHN A. NEWMAN, M.D.	Butte
L. H. BLATTSPIELER, M.D.	Helena
B. J. WINTER, M.D.	Billings
JOHN MURPHY, M.D.	Galen

John H. Casebolt, Executive Director, Montana Tuberculosis Association, has worked in close cooperation with other organizations for the certification of schools. Merrill Alling, Field Consultant of the Montana Tuberculosis Association, reported that in the school year, 1958–1959, testing was accomplished in 17 counties. Of this number, 3 counties were repeated and nine were new programs testing all schools and five were new counties testing selected schools.

Of the 255 schools tested, 128 received Class A. and 66 Class B. certificates. Sixty-four of the schools failed to qualify.

Of the 39,558 students offered the test, 36,247 (92 per cent) responded, of whom 965 (2.7 per cent) reacted. Among the 2,015 teachers offered the tuberculin test, 1,824 (91 per cent) were tested and 269 (14.8 per cent) reacted.

There were 601 other adult school personnel members offered the test of whom 529 (88 per cent) accepted and 124 (23.4 per cent) reacted. Thus there was a total of 42,174 students, teachers, and other adult school personnel offered the test, of whom 38,000 (92 per cent) accepted and 1,358 (3.52 per cent) reacted.

Active clinical tuberculosis was discovered in nine cases connected with the school system and in four persons among contacts of tuberculin reactors found in the schools.

Since the school certification program was inaugurated in Montana in the fall of 1956, 60, 369 tuberculin tests have been given in 524 schools and 33 counties. Of the 1,865 reactors, 85 per cent have responded by consulting their family physicians for completion of the examination.

For the school year of 1959–1960, the Montana Tuberculosis Association has scheduled testing programs in 28 counties, 11 of which are repeats. More than 60,000 persons will be offered the Mantoux test.

In *New Mexico* the subcommittee is composed of:

JOSEPH GORDON, M.D.	Albuquerque
CRAWFORD JERNIGAN, M.D.	Fort Stanton
ASHLEY POND, M.D.	Taos
LOUIS LEVIN, M.D.	Belen

Robert J. Utzinger, Executive Director, New Mexico Tuberculosis Association, said, "Since our Committee was just appointed this past year, we have not swung into action, but will do so this summer in developing a promotional plan for the coming school year.

We know we have a number of schools in the state that could presently qualify for certification so we think we can have some results for you when we get into the 1959–60 school year."

In *North Dakota* the subcommittee consists of:

PERCY L. OWENS, M.D., Chairman	Bismarck
A. R. CUADRADO, M.D.	San Haven
V. J. FISCHER, M.D.	Minot

Mr. Edward L. Sypnieski, Executive Director, North Dakota Tuberculosis and Health Association, reported that in the school year, 1958–1959, the certification of schools project was introduced in 382 schools. Among the pupils, 9,052 received tuberculin by the patch method, and 8,407 by intracutaneous administration. Of those who received the patch test 0.9 per cent reacted while in the intracutaneous group, 0.5 per cent reacted. Among 1,222 personnel members tested, 202 (16.5 per cent) reacted. Since the certification of schools project began in the school year 1954–1955, and continuing through the year 1958–1959, 110,308 children received the test of whom, 1,858 (1.7 per cent) reacted. The test was administered to 7,672 personnel members, of whom 1,440 (18.8 per cent) reacted. A total of 2,271 schools were certified.

In many areas the percentage of tuberculin reactors among the children was exceedingly small, even reaching zero in some places. At the opposite extreme, in one county 4.76 per cent of the children reacted. This was thought to be because that county was partly on an Indian reservation and a great proportion of the county being a fringe area to the reservation. The above figures represent only those schools which qualified for certification. There were many more tests given in schools that did not qualify, for example, in the city of Fargo, 9,000 tests were administered but are not included in the above figures.

Mr. Edward L. Sypnieski, said: "We have had some very ambitious people, who have extended the tuberculin testing beyond the school population to include restaurant workers, bartenders, and waitresses, and practically anybody who would like to avail themselves of a tuberculin test."

In *South Dakota* the subcommittee consists of:

ROSCOE E. DEAN, M.D., Chairman	Wessington Springs
C. L. BEHRENS, M.D.	Rapid City
H. RUSSELL BROWN, M.D.	Watertown
W. R. TAYLOR	Aberdeen
N. E. WESSMAN, M.D.	Sioux Falls

Mr. Marvin T. Whealy is Executive Director of the South Dakota Tuberculosis and Health Association. The Brown County Tuberculosis Association voted to continue the certification of schools project. Nearly all schools in that county were previously certified. A large volume of tuberculin testing was done in Rapid City and other municipalities but schools did not qualify for certification mainly because only children in certain grades were tested.

6. Occasionally it has been asked why the Committee has not recommended such persons as health educators to its membership. Inasmuch as from the beginning the Committee was composed of physicians who developed certification of schools as their principal activity in cooperation with state and large municipal tuberculosis associations, it was felt that nothing whatsoever should be done to encroach upon or to interfere in any way with the excellent work of these organizations. Many of our state and large municipal tuberculosis associations have fine medical

educators or provision for all of this kind of work that is necessary. The function of this committee has been solely to work through subcommittees composed of physicians whom we have been assured will cooperate to the nth degree with the tuberculosis associations and will lend every possible assistance in carrying out the certification of schools project. Thus at all times we have tried to avoid duplication of work that is being so well done by others.

7. Your committee continues to stand firmly for testing of children in all grades. It has never supported selective grades testing because too many catastrophies have been reported among those not tested in a given period. The committee is also insistent upon 100 per cent participation of personnel. We make this requirement because there are so many examples on record of personnel members refusing the tuberculin test and X-ray film inspection of the chest because they knew or strongly suspected that clinical tuberculosis was present.

In some places where facilities are not available for testing all school children in a single year, it is limited to what can be done, but is complete in the schools tested. For example, in some counties, one-half of the schools are tested one year and the other half the next. At all times it has been our desire that certification signify that the best known procedures have been employed to merit such an award.

8. During the year the chairman met with groups and discussed certification of schools with tuberculosis associations and others in Arkansas, Illinois, Iowa, Kansas, Missouri, Montana, New Jersey, New Mexico, Washington, and Wisconsin. The enthusiasm expressed over the certification of schools project already under way, or being contemplated, ran so high as to convince me that in order to have it extended much more rapidly it is only necessary to inform the people. In these places I met with considerable disappointment as there was not one where a member of the American School Health Association identified himself and apparently no one was there to support the project except the few persons actively engaged in promoting it, such as our subcommittee members, and executive directors of tuberculosis associations. These statements are in no sense intended to reprimand but rather to point out possibilities and actual responsibilities of our members if tuberculosis is to be eradicated from the schools of America.

9. It was exceedingly encouraging to converse with and later to correspond with Dr. D. V. K. Volk, Health Commissioner of Saginaw County, Saginaw, Michigan, written June 13, 1959, saying; "I would be interested in working together with the state Tuberculosis Association in developing a certification project."

Working with the Michigan State Tuberculosis Association through his office as Health Commissioner and also through the membership of the American School Health Association of that state would seem to be the ideal program for Dr. Volk to initiate in Michigan.

When mentioned to others, Dr. Volk's proposal has been so enthusiastically received that already in some states plans are under way to have certificates signed by the state or local health officer or some other official. In a considerable number of the states we have enough members to wield a significant influence if they were organized as state units of the American School Health Association. Our members are in key positions to promote this activity and to take considerable pride in seeing certificates bearing

the name of the American School Health Association on the walls of their schools.

Although it does require a large volume of work and effort on the part of nurses, physicians, volunteers and others to locate all the tubercle bacilli among children and personnel in schools and elsewhere, it is the only method by which tuberculosis eradication can be achieved. The complaint about finding so few reactors with so much work should be regarded as a phenomenal accomplishment since it is the best criterion that the eradication program is succeeding. The goal will be reached only when all of the testing in a school or a community results in finding no reactor. This has already been achieved in a considerable number of rural schools in this country, but the testing must go on because of the possibility of the older persons harboring tubercle bacilli becoming contagious.

The ultimate goal is to reach all the schools in America with a complete program as soon as possible. Until this is done, occasional personnel members or high school students will develop contagious tuberculosis and spread tubercle bacilli among their associates, not only in the schools but also in their homes and communities.

COMMITTEE—

LLOYD B. DICKEY, M.D.
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Albany, New York
SYDNEY JACOBS, M.D.
New Orleans, La.
L. S. JORDAN, M.D.
Granite Falls, Minn.
H. D. LEES, M.D.
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ESMOND R. LONG, M.D.
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J. B. NOVAK, M.D.
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Denver, Colorado
J. A. MYERS, M.D., Chmn.
Minneapolis, Minn.

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THE ENIGMA OF TUBERCULOSIS*

MAX DURFEE, M.D.

Medical Director of the School Health Service, Oberlin College, Oberlin, Ohio

Many wonderful things, and, considered from the standpoint of earlier times, almost unbelievable developments have occurred in tuberculosis control methods since the era prior to World War II. During my medical school days in the late 20's, for instance, tuberculosis was still "Captain of the Men of Death," the annual death rate from tuberculosis being 71.1 per 100,000 population with annual deaths amounting to well over 87,000. In 1957 there were only 13,324 deaths and the death rate had dropped to only 7,100,000. If our topic—"Out of Sight—Out of Mind"—were under discussion then I don't know what the experts of the time would have said about it. Tuberculosis was very much in evidence then, so much so in fact that I suspect the subtler aspects of the disease were given little thought generally. I do know how one chest expert felt about

*Presented at the annual meeting of the National Tuberculosis Association, May 24, 1959, and sponsored by the Committee on Tuberculosis of the A.S.H.A., Dr. J. Arthur Myers, Chairman.

tuberculosis. He was our visiting professor of medicine from a nearby sanatarium who taught the section on tuberculosis to our class in Internal Medicine. "Gentlemen," he said in effect, "You may suspect tuberculosis in a patient if there has been a loss of weight, night sweats, a cough during paroxysms of which a drachm or more of blood has been raised."

What our teacher did not tell us was that by the time this patient had arrived at so obvious a state of illness he had probably had his disease for a long time, perhaps as much as two years, or even longer. During *some* period of this time his infection had undoubtedly been contagious as *well* as *without* symptoms. If there had been symptoms—if the patient had not been oblivious to them—their cause would probably not have been suspected as being due to anything so disastrous as tuberculosis.

No: the disease described by my professor was *consumption.* It was not until a number of years later, following graduation, interneship, residency and several years of practice and finally into the field of student health, that I was introduced to a new concept of tuberculosis. The intervening years have shown this concept to be quite essential to conquest of the disease.

In retrospect it is sometimes difficult to understand how presently conceived ideas which seem so obvious could have been so obscure to the majority, but not all of our predecessors. I say "not all' advisedly because we all know of pioneers who must have felt themselves crying in the wilderness. *They* said that one should not await the development of symptoms before making a diagnosis of tuberculosis. "They were seeing a brighter light than other men's eyes were accustomed to." To the majority a disease was not a disease until it made someone sick. When it was out of sight it was out of mind.

There are several well known instances when it has been socially, economically and medically disastrous not to recognize the importance of seeking out cases of tuberculosis before the disease made itself known through symptoms. Many of you, I am sure, have heard Dr. J. Arthur Myers' oft repeated but little heeded story comparing control of Bovine Tuberculosis in the U. S. with the British program. In America we destroyed every cow which showed the slightest sign of tuberculosis; that is any cow that reacted to tuberculin. The result is that at the present time every county in the USA is accredited as to freedom from bovine tuberculosis. In Great Britain, I am told, they scoffed at Yankee wastefulness—destroying all those fine looking critters! The English just destroyed the ones that *looked* like they had TB. The result? Britain, the last I heard, had as much bovine tuberculosis as when the program started in 1913.

Then there is the story of World War I and the subsequent expenditure of millions—probably billions of dollars for the care of tuberculous veterans. In World War I draft rejections for tuberculosis were based almost exclusively on physical examination, with release only of those with obvious tuberculosis. Who can even estimate the amount of human misery and suffering to say nothing of the economic saving that could have followed the detection of cases before they had become obvious.

The Miniature X-Ray

It was not until late in the interval between the two great World Wars that man's ingenuity brought forth the techniques essential to mass

X-ray programs. I attended a public health meeting at Grand Rapids, Michigan in about 1938, as I recall the date, where Dr. Henry Vaughn, then Commissioner of Health for the City of Detroit, made the startling announcement that the way had been paved toward the elimination of tuberculosis. A device had been developed for rapid chest X-ray at a cost perhaps as little as 5¢ a film—he said then. He was a little mistaken. It costs us 10¢ just to have them read! This device was the miniature X-ray equipment and the resulting photofluorogram.

Although civilian populations have benefitted greatly from the photofluorogram, we must admit, unfortunately perhaps, that one of the greatest evidences of its worth was in the screening of inductees in World War II. As related by Dr. Charles E. Lyght in an article in Look magazine soon after the war, about 150 thousand young men and women received the jolt of their lives by having their tuberculosis, frequently unknown and unsuspected, discovered. The title of Dr. Lyght's article was "Tuberculosis Must Be Blitzed". He made the observation that although these young people must have been shocked to learn that they had tuberculosis, the discovery undoubtedly prevented the infection of untold numbers of associates. And indeed, more importantly for those having the disease, their chance for successful treatment and early recovery was increased considerably.

The full story of the development, the use and success of miniature X-ray equipment in the anti-tuberculosis movement need not be retold here. You are probably as aware as I that up to the time of the Hinshaw-Feldman announcement in 1944 of the value of streptomycin as an anti-tuberculosis agent, the X-ray was one of the most important single factors contributing to the fight against tuberculosis, comparing with the discovery of the tuberculosis bacillus itself. The X-ray, including the photofluorogram, opened great new vistas bringing into focus a large part of that which, being "out of sight" was apt to be and frequently was, "out of mind."

Unfortunately, however, because Mother Nature endowed this tiny acid-fast adversary, the tubercle bacillus, with such a perverse nature as relates to its effect upon man, something of a trap was set. The eye had not been blinded so that it could not see. Rather limitations have been placed upon vision, itself.

The Limitations of the X-Ray

When tuberculosis germs are acquired by a new host a series of events take place. What happens at first does not have much effect upon the victim, or, if there is some derrangement, only exceptionally is the true cause discovered. And worse yet these early beginnings of tuberculosis are microscopic—they cannot be seen by the naked eye—they make no impression upon the X-ray film. In addition to these facts, which are out of sight to the average casual observer, only about 75% of the total lung is visualized by ordinary X-rays. Thus the trap is set—the trap of a "negative" X-ray report. Such a report, usually given with authority and with somewhat of a sense of finality, certainly affords some people a false sense of security. Please don't misunderstand me. No one knows better than I the feeling of relief one gets upon receiving the well known letter of congratulations from the mobile X-ray unit. "The X-ray shows no signs of disease in the lungs," says the radiologist. But since 25% of the lung is not *visualized* and since early, beginning lesions are not seen at

all, the very thing we seek may be "out of sight," and therefore, I contend, too easily "out of mind."

The Value of the Tuberculin Test

Some of you may suspect that this is leading me to another phase of my talk, and you are correct. In fact the subject I now approach has caused a great deal of controversy and let to considerable misunderstanding. At the present time, however, we are emerging from the woods. The tuberculin test is coming into its much belated own. For many years there has been a great deal of talk about the importance of early diagnosis. Yet we have neglected the very tool which makes the diagnosis of tuberculosis far earlier than by any other method. We do not need to dwell at any great length upon the subject because we are probably all agreed as to its importance. The American School Health Association has certainly been awake in this regard. What we are wondering is, how do we get the job done and I hope I may leave you with some ideas about this.

The most important fact about the tuberculin test which we should never foreget, is this: The way in which a person reacts to tuberculin tells us earlier and with a greater degree of certainty than by any other method, whether or not that person is infected with the germ of tuberculosis. "Ah", you say, "but it doesn't tell us whether or not the person has tuberculosis." And I must remind you of our topic—"Out of sight—Out of mind" because the tuberculin reactor *does* have tuberculosis. The significance of his disease is only a matter of degree.

However, we should not quibble about this. Really, what I want to point out is that out of every 100 persons having chest X-rays and receiving the letter of congratulations about 30—the figure varies in different places—about ⅓ should *not* be congratulated. They have been infected with tuberculosis and no one knows it. I contend that these people are apt to take too lightly their report of a "negative chest." If ⅓ of us are tuberculin reactors this means that over 50,000,000 people have reservoirs of living germs in their bodies.

Our job of tuberculosis education is just nicely started. We know now that although we must continue to direct our efforts toward the total population, it is only some ⅓ of our people, at any given time, about whom we need to be concerned regarding tuberculosis. It is this ⅓ that we must be continually conscious of, and they should be made aware of their danger. Perhaps I may illustrate better what I mean about the use of the tuberculin test in the solution of our problem if I describe a program designed to accomplish the job in a specialized group.

*The ACHA** Program*

For well over a quarter of a century the American College Health Association has advocated a combined program of tuberculin testing and chest X-ray for the college students of our nation. It has been our contention that all students should be both X-rayed and tuberculin tested at the time of first enrollment in college. The reasons are several. First, in addition to abnormalities which may be discovered, an initial, or basic record is obtained of the X-ray appearance of every student's chest as of

**American College Health Association.

that date. Second, we have an early record of the degree of "tuberculization" of our student body—how many react to tuberculin—how many do not. In subsequent years of enrollment the previous non-reactors are retested because some will convert to positive. The reactors are re-X-rayed annually. Such a program keeps tuberculosis very much in sight and very much in mind. That it pays off has been proved on hundreds of occasions at colleges having such a program. One survey showed that 12 times more tuberculosis was discovered among students at colleges with a good tuberculosis control program, as compared to colleges which found the disease "catch as catch can." The educational value is unequaled. On campuses not having any kind of a tuberculosis control program the frequent reply to our attempts to stimulate interest is to the effect that "tuberculosis is unknown at our college." I suspect that it was replies like this which led to the story of "John Doe, Candidate for an Honorary Degree."

The Story of John Doe

When I first considered writing a paper about the enigma of tuberculosis I was thinking in terms of the revelations contained in the Story of John Doe. There was a temptation to entitle this discussion, "John Doe Revisited." The complete story was first told in the early 1940's, having been presented by Dr. Charles E. Lyght, then Director of Student Health at Carleton College in Northfield, Minnesota, subsequently Director of Health Education of the NTA and currently associated with Merck, Sharpe & Dohme as Medical Editor. We do not have time for as complete a review of The Story of John Doe as warranted by the topic of this evening's discussion. I hope the pamphlet is still available through the NTA and I recommend it to you. Dr. Lyght very cleverly wove into the fabric of his story many of the better known aspects of the total tuberculosis control problem.

There is no doubt that actual happenings in the doctor's experience fired his vivid imagination to develop this story. I am sure that any tuberculosis expert in our audience could obtain from his files the story of a Grandmother with "bronchitis" who infected her grandchildren with tuberculosis, of a doctor who missed a case of tuberculosis because he failed to look for it in a "patient he had known all his life," an infant who died of meningitis of unknown cause which was probably tuberculous.

These it is our business to have a hand in prevention—through education; education at all levels. Dr. Robert Browning stated in an editorial in the NTA Bulletin that we must use our influence to effect a more adequate educational program on Diseases of the Chest, including tuberculosis, in our medical schools. We must continue to sponsor opportunities for post graduate study for both chest specialists and general practitioners. We must keep the public informed and do everything in our power to prevent the usurpation of our right to keep the people informed through our Annual Sale of Christmas Seals. Inclusion of our fund raising activities in a so-called United Fund will inevitably lead to the public losing sight of our objectives because we will be out of their minds. We are dealing with a tricky foe (I am now speaking of tuberculosis, again). The enemy is even now preparing us for invasion by lulling us into a false sense of security. When we can sense his presence he is already well entrenched. His most favorable ally is his ability to be "Out of Sight"—and therefore, "Out of Mind."

TUBERCULIN TESTING—THE NECESSARY STEP IN ERADICATION*

EDWARD PISZCEK, M.D.

Executive Director, Suburban Cook County Tuberculosis Sanatorium District, Illinois

Much has been said and volumes have been written regarding the importance of the tuberculin test in the control of tuberculosis. It is not my intent in this paper to discuss any of the principles of tuberculin testing but merely to stress the importance of a qualified staff in the conduct of tuberculin testing in the total eradication of the disease.

Tuberculosis control measures programmed to eradication of the disease have been overshadowed in comparison with the control of other communicable diseases such as smallpox, diphtheria, typhoid fever, tetanus, and, recently, poliomyelitis. It would be easy to compare these disease control programs with tuberculosis control if we had a positive immunizing agent against tuberculosis. Not having one we must then consider tuberculosis in a separate control category and focus attention on screening which differentiates the susceptible individuals, that population already known by a tuberculin test—the negatives never having had an actual exposure to the disease and the positives having had active exposure to the disease making them much more susceptible to reinfection tuberculosis.

The major requirement in any tuberculin testing program directed towards the eradication of this disease is the availability of trained personnel. This personnel must realize that tuberculosis is the last of the major communicable diseases in the first ten leading causes of deaths. In many areas of the population it has already moved out of the ten leading causes of deaths and has been placed in the twelfth, thirteenth, fourteenth, or even fifteenth place as a killer of human beings. This personnel must also realize that in the United States today there are still in the neighborhood of 15,000 deaths a year from this disease, so officially recorded, and probably many more deaths to which tuberculosis was a contributing cause. This personnel must also realize that in the United States there are almost 70,000 new active cases of tuberculosis reported a year and that there are 150,000 active cases in the United States during any one year under active therapy and that there is an additional reserve of roughly 250,000 people with inactive tuberculosis who are subject to an extremely high reactivation rate. This personnel must also know that there are in the United States over 40 million positive tuberculin reactors who have had a definite exposure to tuberculosis at one time during their life time and who have a very high susceptibility to reinfection tuberculosis. This personnel must also know that in the reading of a tuberculin test, the arm should be felt by the reader's hand since merely a glance is not enough to determine induration and the size of the induration following a tuberculin test. These factors are very important.

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Delivered at the American School Health Association session of the National Tuberculosis Association meeting, Chicago, May 24, 1959.

The importance of tuberculin testing varies tremendously according to the type of program one is interested in. The tuberculin testing of familial and household contacts to known active cases of tuberculosis constitutes a high priority public health responsibility. The follow-up of these contacts after exposure to a known active case of tuberculosis is a *must* in all good tuberculosis control programs.

The importance of tuberculin testing in the schools has in many areas of the country held a lower priority since it has been used to determine the exposure rate in the community and only incidentally as a case-finding program. Today, with fewer and fewer cases dying of tuberculosis the emergency nature of tuberculin testing and follow-up has been greatly reduced. However, those of us who have lived through a generation of communicable disease control programs know that more than ever today tuberculin testing is of major importance in a community to make known the *positive tuberculin trail* that follows a *contagious* tuberculosis case.

Public health agencies as well as tuberculosis agencies today are not only interested in the elimination of deaths in the control of tuberculosis but are interested in the early recognition of disease where not only complete recovery but also complete rehabilitation is possible. Good tuberculosis control programs today emphasize the importance of finding tuberculosis in the minimal stage or at least in the early moderately advanced stage. There is no glory in finding far advanced cases of tuberculosis—not even an X-ray is necessary to detect many of these cases. The routine examination of military personnel in the Army, Navy, Air Corps, and Marines, as well as the Veterans Administration programs and the welfare and prison programs in this country have proven conclusively that good case-finding programs can discover tuberculosis in the early stage where treatment and rehabilitation are complete.

The tuberculin test today is the most important tool we have to find those who have already had an exposure to tuberculosis and who constitute the greatest source of new cases of tuberculosis. We must emphasize the tuberculin test as the primary factor today in a total program towards the eradication of tuberculosis.

Newer clinical developments in the field of primary and secondary chemotherapy give major importance to isoniazid as a chemoprophylaxis to positive tuberculin reactors. Today, clinicians use chemoprophylaxis in the following ways:

1. Primary Chemoprophylaxis

Placing contacts to known active cases of tuberculosis under isoniazid chemoprophylactic therapy even before there is evidence of a positive tuberculin test conversion. Where a mother is found to have active disease with positive sputum, and a young child under the age of one is involved, there is no doubt of family-child exposure and many clinicians advocate the use of isoniazid in this sort of a case. Time alone will tell the absolute efficiency of primary chemotherapy.

2. Secondary Chemoprophylaxis

Placing those individuals with a recent positive tuberculin test under isoniazid chemoprophylaxis. Programs of this nature have been carried on in several parts of the world where the exposure rate to tuberculosis is extremely high. The introduction of isoniazid as a chemoprophylactic agent is recognized today by clinicians as a safe prophylaxis towards the

reduction of complications from this disease which may appear as a result of their exposure to active tuberculosis.

As the control programs for tuberculosis become more and more automatic and less and less prominent in a public health program, the tuberculin test will significantly appear to be the absolute test necessary in the program towards the eradication of tuberculosis.

It would be ideal if every child born in this country had a pediatrician or a family physician who was willing, in his good pediatric practice, to do a routine tuberculin test twice during the first year of life and every year or two in the pre-school period. We would then have a good record of all of the children who were exposed to tuberculosis very early in life; however, it is quite evident that this is not done in more than one-fourth of our population today. Pre-school health programs are one of our neglected medical problems today. This program of tuberculin testing and certification of schools which have a very high percentage of their students tuberculin tested is an excellent and necessary program in tuberculosis eradication.

All evidence at the present time points to the fact that the reservoir of potential cases of tuberculosis consists of the approximately 40 million people who have a positive tuberculin test. All evidence also points to the fact that when an individual has a positive tuberculin test, there are three periods during his lifetime when there is strong possibility of tuberculosis activity. The first period is in that age under two when children are much more susceptible to tuberculous meningitis, miliary tuberculosis, and active primary pulmonary disease. The second danger period in the life of a positive reactor is that period during the childbearing age in the female, between 15 and 35. Tuberculosis clinicians, obstetricians, and sanatorium directors are all aware of this high incidence of tuberculosis in females during pregnancy, a high stress period. The third period in the life of a positive reactor is that period over age 50 when there is a higher tendency to reinfection tuberculosis.

Earlier in this presentation I talked to you about the use of isoniazid as a chemoprophylactic agent. Many clinicians now feel that chemoprophylaxis for the positive reactor to tuberculin should be used at least during these three high incidence periods of tuberculosis reinfection and many feel that possibly the day will come when every positive tuberculin reactor will be placed under isoniazid prophylaxis for a period of one year. Only time will tell the effectiveness of such chemoprophylaxis, but if this program is successful we are actually on the most optimistic road that we have had to date towards the eradication of this number one contagious disease public health problem facing the world today.

* * * * *

NOMINATIONS FOR 1960–61

The Constitution of the American School Health Association requires the Nominating Committee to solicit names for Association officers and five members of the Governing Council at this time. Officers to be elected at the San Francisco meeting in October of 1960 are listed inside the front cover of this issue. Any member or fellow of the Association is herewith invited to send suggestions to the Chairman of the Nominating Committee, Dr. Delbert Oberteuffer, The Ohio State University, Columbus 10, Ohio.

A VETERINARIAN LOOKS AT THE TUBERCULOSIS PROBLEM*

PAUL S. DODD, D.V.M.
Danville, Illinois

Veterinary science is dedicated not only to the prevention and treatment of animal disease but also the prevention of human disease of animal origin. The many branches of the profession each share some responsibility, whether in general practice, regulatory work, research or other duties such as meat, poultry, dairy or food inspection. The prevailing philosophy of veterinary medicine is disease prevention. All organized disease control programs and inspection services are aimed at preventing the spread of infectious and contagious disease to other animals and to man. Local practitioners today say that seventy-five percent of their practice may well be classified as preventive medicine.

The Bureau of Animal Industry, Animal Disease Eradication Branch of the United States Department of Agriculture is the governing body for the various activities, well organized through the federal, state to county level in such a manner that whenever or wherever the occasion demands, experienced men are available to attack any problem at it's source. The Bureau has an enviable record in stamping out acute disease, sometimes by rather drastic methods but surely effective. Many diseases are tolerated in other parts of the world which have been eradicated in the United States, thanks to Bureau activities.

Probably the outstanding programs are the control and eradication of the more chronic diseases with which we are currently concerned. The bovine tuberculosis eradication campaign is no doubt the most familar, being a model in concept and execution for similar programs, such as brucellosis eradication, in which we are now simultaneously engaged. As a result of the experience gained in the tuberculosis campaign, brucellosis, equally prevalent and contagious will be eradicated in much less time and at less cost.

At the turn of the century tuberculosis was considered the most serious disease of the food producing animals. More than ten percent of the cattle and swine carcasses slaughtered in inspected packing houses, were being condemned as unfit for human consumption, beef and dairy cattle breeders were becoming more conscious of losses in beef and dairy production, medical authorities and public health officials had discovered the dangers inherent in milk from infected cattle, especially for infants and children. Bureau veterinarians had been working with individual herd owners, attempting to clean up their herds and attain accredited status. They were using the subcutaneous or thermal test which was rather slow, tedious and time consuming, not lending itself to an elaborate mass testing operation, however experiments were being conducted to find an intradermal test similar to the Mantoux used in human testing.

By 1917 a satisfactory tuberculin was developed and the Bureau announced, "We are going to tuberculin test all the cattle in the United

*Presented at the annual meeting of the National Tuberculosis Association, May 24, 1959, and sponsored by the Committee on Tuberculosis of the A.S.H.A., Dr. J. Arthur Myers, Chairman.

States, we are going to eradicate bovine tuberculosis." I am quite sure only the most optimistic could visualize the true significance of that statement or dream of it's fulfillment. Yet in twenty years ninety five percent of the counties were accredited, the incidence of reactors having been reduced to less than one half of one percent. After forty years of continous testing the goal is *virtually* attained, every county is accredited and the incidence of reactors is approximately one tenth of one percent. We would be most happy to report total eradication but that is not the case. Due to the insidious nature of the tubercle bacillus, the various hosts and types of the disease, makes the word *total*, unrealistic. We have always known the bovine type infection is pathogenic to the human, there are some cases on record wherein the human type has been pathogenic to cattle. The avian type readily infects swine, possibly cattle and the human, perhaps not virulant enough to cause active disease but certainly sufficient to cause skin test reactions, therefore total eradication seems to depend upon the elimination of all types of the disease, in all types of hosts and carriers. Indifference and complacency have no place in disease control but they do enter into the picture. Too many people seem to feel the job is done but in some areas infection still exists, seventy five percent of the reactors found during the last three years are reported from nine states containing about thirty percent of the total cattle population, mostly dairy animals. We know we have certain herds in every county which should have annual tests and so long as the many vectors are at large, constant vigilance is imperative.

The talk of eradication is being over emphasized, perhaps making it increasingly hard to get sufficient appropriations in some states to carry on a proper follow up program. If constant vigilance is not maintained much that has been accomplished may be lost.

I deeply resent the oft repeated statement, "Oh, your job was easy, you just killed your reactors." I wonder if these thoughtless persons realize how much organization, planning and effort was involved, how much rough, tough, hard, dirty, exposing, exhausting and often dangerous work it entailed, how much knowledge, training, ingenuity, salesmanship, tact and diplomacy was necessary to get the job done. No it wasn't easy, nothing worth while ever is. You must remember that the reactors had to be *found*, *before* they could be destroyed.

The Bureau asked the various states to cooperate, they in turn asked counties to do likewise, as the county was designated as a unit of operation, with the idea of cleaning up and accrediting the smaller area singly, then collectively. Plans of proceedure were perfected, veterinarians trained to supervise and train others. Federal veterinarians were assigned to each state to supervise work with the delegated authorities therein. Many counties employed veterinarians in many states, others less thickly populated depended upon transient federal and state forces which were being made available. Uniform methods of operation and reporting were common to all areas.

After being assigned to a county the veterinarian with the aid of the township supervisors, livestock breeders and others made his plans. Each township was canvassed thoroughly, *every* farm visited and *all* the cattle were tested, *all* reactors were slaughtered, premises were cleaned and disinfected. The infected herd was subjected to at least two retests, at

sixty day intervals, or until all danger of infection was dissipated. Many herds were tested every sixty days for several years before all infection disappeared. The infected herd was then placed on a list for annual retests, thereby providing a thorough follow up, and many of these herds are still being subjected to annual tests. If there is any secret for the success of this campaign it lies in these two fundamentals, testing *all* the cattle and a *thorough follow up* on every infected herd. The Bureau today follows every infected animal. A beef cow slaughtered in Milwaukee showing lesions of tuberculosis was traced to the farm of origin in Illinois. Another slaughtered in Cleveland was likewise traced and a reactor found in Florida was traced thru three owners to the farm on which the animal was born in Illinois.

Let me say here that the average veterinarian engaged in this campaign did not fully realize the vital importance and magnitude of the job he was doing. He was assigned a task, he did it in routine workman-like fashion, not without adversities, but determinedly resolved to find that last infected animal. Which reminds me of the statement "Many worthwhile things could be accomplished if no one wanted the credit for doing them."

Our experience with the tuberculin test, the *only* tool we had, probably makes us prejudiced to that method of case finding and we look most favorably on the test, as a procedure too long neglected in human case finding programs. Tuberculin for human use has been available for more than sixty years but a very small percentage of our population have had a tuberculin test. How can you ever eradicate such a disease without finding and removing the infected and the infectors at the earliest possible moment? I am happy to note in recent years a more determined effort to increase the volume of tuberculin testing, a tendency to re-evaluate our case finding methods.

H. Corwin Hinshaw, M.D. is credited with this statement "Now that tuberculosis can be treated successfully, it is more and more a disgrace that every case is not receiving these benefits." Research has been and will continue to be a vital necessity, methods of prevention would be a major step in eradication, rehabilitation is highly commendable, but is not case finding the most important procedure at this time? How can drugs, hospitals, medical specialists and rehabilitation be of any value without a patient, a patient found in time to take advantage of recent medical research, found in time to prevent reactivation and further dissemination of the disease? Far too many of our hospital admissions today, are over fifty years of age. Eight cases admitted to our local hospital in the last two years were between fifty eight and seventy years of age. Too many cases are reported on death certificates for the first time. Certainly more extensive case finding is imperative and the simplest and cheapest method is the tuberculin test.

I have been impressed by the mass testing programs now being carried on in some states, notably Minnesota, Kansas, and Iowa, also areas such as St. Louis County Missouri, and Grand Rapids Michigan to mention a few. Statewide, Minnesota has probably done the most outstanding job of case finding by using the tuberculin test, its many hundreds of Certified schools and large percentage of Accredited counties proves the point. I refer you to the Minnesota Health Association and others for further

information. Those persons responsible for initiating and carrying out these programs deserve our undying gratitude. The examples they have set deserve the study of every one interested in tuberculosis eradication.

I realize that much planning, organization and cooperation of the many combined segments of a populace is necessary, to promote a program of mass testing, but combined efforts are made for other community activities, probably of less importance. If the problem is well presented with factual material there is every reason to believe it would receive approval and encouragement. It appears we are too complacent about our tuberculosis problem, talk of wonder drugs, closing of tuberculosis hospitals, mortality and morbidity rates, and such, leads to a sense of false security, not facts. Polio posters show a crippled child with braces and crutches, maybe we should show pictures of emaciated bed patients with tuberculosis, or cripples with tuberculosis of the spine, perhaps our educational programs are too naive, too mild and unrealistic. We must adopt a more positive and dynamic program, the tubercle bacillus may play possum, but it won't lay down and die, just because we abhor its presence in our modern society.

School testing surveys, especially in thel ower grades may not be too productive, per se, but the educational value is unlimited for all concerned, as well as a means of locating adult infection and infectors thru follow up of contacts of youthful reactors, in brief, a simple method to find the answer to the complex problem. Certification of schools and accreditation of counties is most commendable, a sense of pride, interest and community well being is stimulated, general health is improved, aside from the fact that tuberculosis is being found in its primary stage when it is more amenable to treatment and the chain of infection severed.

We have found the accreditation of individual herds and counties stimulated increased interest in our campaign, a spirit of friendly competition developed, even today the owners of accredited herds take great pride in acquiring and maintaining their status, requiring annual tests.

The National Tuberculosis Association estimates that 55 million Americans are currently infected with tuberculosis. Last year, 69,000 new active cases were reported, and nearly 14,000 persons died as a result of the disease. The death rate for tuberculosis was higher than that for all other infectious diseases combined. The association reports that there are at present 150,000 known active cases, and 100,000 cases which have not yet been reported to health authorities. In all, they say, 1,750,000 persons living today have had tuberculosis and are in need of medical supervision to prevent relapses.

From a veterinary viewpoint this statement represents a rather untenable situation, a condition intolerable in our thinking. While we have not accomplished total eradication, we have made much better progress than workers in the human field, in spite of many comparable complications.

We hear a great deal of talk about health education but I wonder if we are reaching the right people, we talk about the media group, newspapers, television, radio and schools but tuberculosis is a medical problem. Unfortunately too many members of that profession seem indifferent to the facts about tuberculosis, yet in communities where the greatest progress in control has been made, interested medical men have taken the

lead or actively engaged in case finding efforts. In many areas the majority of cases of tuberculosis are found in the physicians office, in others they are found more by accident than intent. The media group are important, as are service clubs, womans clubs, P. T. A. Associations and other civic organizations, but the medical profession must be involved.

It would seem logical that N.T.A. and its medical affiliate the American Trudeau Society, should with the aid of all official and voluntary agencies, map out a nation aide case finding program aimed at finding every reactor, every contact, every active and inactive case of tuberculosis. A case record of all of these, placed under proper supervision and the routine testing of children at regular intervals, would give a pretty complete picture of our present situation and show in what areas additional efforts should be concentrated. The tuberculin test is the best and cheapest method of screening masses of people, after that process is completed, X-ray, drugs, surgery and rehabilitation can be intelligently applied.

I realize such a plan may seem fantastic and unrealistic but certainly no more so than to say you were going to test all the cattle in the nation. Justice Brandeis once said "Most of the things worth doing in the world have been declared impossible *before* they were done." Human nature being what it is, a complete test is improbable but a greater effort must be made in the case-finding field, if eradication is ever achieved. Tuberculosis is where you find it and it can only be found by intensive search.

A quotation from Everybodys Health reads "If a man leads a cow it isn't news but when cows are leading man, then there is something to write headlines about." Literally that statement is not true but the implication is evident, the bovine eradication program is a perfect example of a good sensible case finding program that may well be followed by workers in the human field. Another quotation from the same publication says "We are following the examples set by the veterinarians." Some workers in some areas are copying our methods with good results but too many are not, at least not close enough to obtain comparable results. If they are following at all, they are so far behind that any similarity between the two programs cannot be recognized. We veterinarians feel that if we have been able to accomplish so much with the simple tuberculin test, with belligerent, non-cooperative patients, workers in the human field could and must do a better job, if they are to provide a climate as safe for our babies as for our calves, insofar as tuberculosis is concerned.

It would seem enough people take the right train but not enough get off at the right station.

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RESEARCH OF INTEREST

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Abstracts of selected research and reviews of research in school health education, health services and guidance, healthful school living, and health science . . .

Anon: "Special Report: Rheumatic Fever." *Patterns of Disease* (Dec.) 1959.

This review of research and statistical data provides some highly significant information for health educators, school physicians and nurses, and all who have some responsibility for better school health.

Rheumatic fever is the fifth leading cause of death in the 5 to 14 age group, with highest incidence occurring among children between 5 and 12 years. A half million American children—between 5 and 19—have had rheumatic fever. About half of these have residual heart damage, usually occurring in the first week.

Though a clear-cut causal relationship has not yet been shown, a majority of rheumatic fever victims have had streptococcal infections 1 to 3 weeks prior to onset of the disease. Throat infections are most prominent of the antecedent illnesses. Rheumatic fever seems to run in families. Recurrence rates are highest between the ages of 4 and 13, with peak risk of recurrence around 10. Flare-ups are particularly dangerous because of heart damage caused by the first attack. The importance of proper treatment—hormone or salicylate—continued over an adequate period is stressed in the prevention of recurrence.

Studies demonstrate the value of penicillin in reducing the incidence of streptococcal infections and recurrence of rheumatic fever among children who have had the disease previously. Without prophylaxis at least half of the children who have had rheumatic fever experience a flare-up after streptococcal infection; those who have not had rehumatic fever show only a 3 percent incidence following untreated strep infection.

Happily, the majority—65 percent—of rheumatic fever patients can resume normal living. Some 19 percent have slight physical restrictions, while only 16 percent must follow a regimen of moderate to marked restriction of physical activity. Emphasis is placed on the importance of encouraging physical activity within the capacities of the latter two groups and, at the same time, avoiding an attitude of overprotection and fear psychology.

Since throat infections play a primary etiologic role in the development of rheumatic fever, teachers and nurses—as well as other school personnel—along with parents should be alert to the potential danger of untreated streptococcal throat infection.

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Burney, L. E.: "Live Poliomyelitis Vaccine Status." *Public Health Reports* 74: 983 (Nov.) 1959.

Dr. Leroy E. Burney, Surgeon General of the United States Public Health Service, reviews recent research and developments relating to live

poliovirus vaccines. His comments are based upon the August 1959 conclusions of the Public Health Service's Committee on Live Poliovirus Vaccine.

Assuming solution of the remaining technical problems concerning safety, effectiveness, and manufacturing procedures, at least one of the three vaccines currently under investigation may be available to the public within one to two years.

The Sabin vaccine has been used extensively in field trials in Eastern Europe, Mexico, and Singapore; the Lederle strains have had wide trial in Latin America; and the Koprowski vaccine has been used with a large population sample in the Belgian Congo. All are oral vaccines.

The Committee cites four crucial problems which must be resolved before any definitive decisions can be made on licensing:

(1) The significance of increased damaging effects on monkey nerve cells by virus excreted by vaccinated humans.

(2) The development of adequate techniques to effectively control the experimental factor. It is possible that some nonvaccinated controls will develop immunity because of the ability of the virus to spread among contacts.

(3) The development of standards to detect stray agents in the vaccine, and the determination of their pathogenicity for humans.

(4) The completion of carefully designed studies aimed at demonstration of specific antibody production in 90 percent or more of inoculated susceptibles.

The Surgeon General reiterates his plea for all persons, especially those under 40, to complete their series of Salk inoculations. The Salk vaccine has already clearly demonstrated its effectiveness and safety.

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Anon: "High-School Graduation Requirements." *NEA Research Bulletin* 37: 121 (Dec.) 1959.

In 1958–59 the Research Division of the NEA conducted a questionnaire study of high-school graduation requirements. Responses from 866 principals provided the following data:

(1) Almost four-fifths of the reporting schools offer only one course of study, or set of requirements, for graduation.

(2) The largest schools have the widest variety in graduation requirements, and the smaller schools the least.

(3) Most courses of study can be categorized roughly as "Academic," "Commerical," "Vocational," or "General."

(4) Health and physical education (grouped together throughout the report) and driver education are sometimes required but no credit is given toward graduation.

(5) Health and physical education are required by about two schools in three. Only about 2 schools in 100 require driver education at present.

(6) Among course of study titles included in the "Vocational" program were Medicine, Home Economics, and Nursing.

(7) Driver education is less often required in the Academic courses of study than in the General or single courses.

(8) The average total of required units in every type of course of study is now higher—by about a half unit—than the classic 16 units previously recommended (Carnegie Units) for the four-year high school.

(9) During the past five years some 3 percent of the schools have added new requirements in health and physical education. About 2 percent have added requirements in driver education.

(10) Over the last five years only about 1 percent of the schools have increased previous requirements in health and physical education, and none in driver education.

Unfortunately, no delineation was made between health education and physical education. One is left to speculate on the degree of gains or losses made by health education in the high-school curriculum in recent years.

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Cureton, T. K.: "Physical Training Helps to Regulate and Improve Glandular Functions: A Review of Research." *Research Quarterly* 30: 266 (Oct.) 1959.

Dr. T. K. Cureton, Director of the Physical Fitness Research Laboratory at the University of Illinois, presents a review of research linking exercise with improved endocrine function.

It is theorized that better glandular function is a concomitant of circulatory efficiency. Improved oxygen intake and nutrition of the glands are obvious outcomes of heightened circulatory function. Other factors—all associated with planned programs of progressive endurance training—which may be considered influential in improving endocrine function in humans include (1) better nutrition, (2) higher metabolism, and (3) release of psychological tensions.

Data from numerous sources are cited in support of the theory that glandular function is a prime factor in health, behavior, and youthfulness.

The review provides analyses of animal and human studies showing relationships between vigorous exercise and function of the pituitary, adrenal, pancreatic, thyroid, and sex glands. Supportive material of a non-research nature is also included in the presentation.

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Krieghbaum, H.: *Science, the News, and the Public.* Survey Research Center, University of Michigan. New York: New York University Press, 1958.

This report details the findings of a public opinion survey conducted by the University of Michigan's Survey Research Center for the National Association of Science Writers.

Of the sample of almost two thousand people, 76 percent remembered at least one specific science or medical news item from newspapers, magazines, radio, or television. Significantly more respondents were able to recall medical items than non-medical science news. Health science items most often recalled were those concerned with heart diseases, cancer, polio, and mental illness.

Some 40 percent reported that they read all their news of medical and health science in newspapers. Two out of five wanted newspapers to give more space to health and medicine.

This national public opinion survey makes it abundantly clear that the American public is keenly interested in news relating to health and medical science. The role of school health education in preparing people to better understand and analyze health news is rather obvious.

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Mitchell, H. H. and W. J. Peeples: "Newer Concepts of School Health Services." *Journal of the American Medical Association* 171: 2060 (Dec. 12) 1959.

While not essentially of research origin, this article describes the results of a "teamwork project" in school health services in a rather typical suburban county.

In Montgomery County, Maryland an effort was made to put into practice the fundamental concept of close coordination and cooperation among school personnel, parents, public health specialists, and private medical practitioners.

In this project it was evident that school personnel do not usually understand or appreciate the medical aspects of pupils' problems. The authors also deplore the failure of school people to comprehend the value of the "doctor-parent-child" relationship. Further criticism is levelled at educators who "recommend with all the authority of the school system that a parent seek a particular kind of specialist" or who "assume that they can deal with a problem because they believe they can recognize a situation calling for medical help."

Based upon their experiences in this county-wide project the authors make a strong plea for the use of part-time pediatricians to provide the all-important liason between education and medicine. These school medical advisors are employed on a session basis as consultants who visit the schools by appointment. The school medical adviser interprets recommendations of private physicians to school personnel and, in like manner, aid private physicians in understanding better reports of school psychologists.

While the program of health services is concerned with all pupils, special emphasis is placed upon children with physical, mental, or emotional handicaps. The authors substantiate this point of view by reference to new developments in medicine, public health, and education.

The implications of this report seem to fall into three significant categories: (1) the part-time pediatrician school adviser is essential to rapport between medicine and education; (2) more attention must be accorded children with problems; and (3) increased emphasis should be placed upon school health in teacher preparation and in-service training of educators.

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Veenker, C. H.: "A Health Knowledge Test for the Seventh Grade." *Research Quarterly* 30: 338 (Oct.) 1959.

This is a report of a study completed as part of the requirements for the Doctor of Health and Safety degree at Indiana University in 1957.

The study developed a valid and reliable test of health knowledge for seventh-grade pupils. The preliminary form of the test was administered to 1196 seventh graders in Indiana schools, with the final test form given to a total of 978 seventh-grade boys and girls.

Preliminary test forms were developed from content included in leading health textbooks used by seventh-grade pupils. Area emphasis was Personal Health 30.9 percent, Nutrition 24.1 percent, Diseases 22.0 percent, Environmental Health 15.7 percent, and Mental Health 7.2 percent. The votaw curve technique was used to determine item

validity. Reliability of the test forms was determined by the Kuder-Richardson formula.

Two forms of the test are available at 25 cents each, plus 10 cents for the test manual, from the author at Purdue University, Lafayette, Indiana.

In Memoriam

Dr. Kenneth R. Gibson, age 64, died at his home in Birmingham, Michigan, December 16th., after a long illness.

Dr. Gibson was a very active leader in Health Education all his life.

He served as the director of the bureau of Dental and Oral Hygiene, Michigan Department of Health for four years and a Director of the Dental Division of the Children's Fund of Michigan for Twenty years.

He had served the Michigan School Health Association as its president and also as its Secretary-Treasurer. For many years he was a member of the Governing Council of the American School Health Association. He was also a Vice President and was President elect in 1954.

V. K. Volk M.D., Chairman of the Fellowship Committee, represented the American School Health Association at his funeral.

A NOTE TO SCHOOL NURSES

The *Journal* has offered the nurses bi-monthly space for airing problems, research reports, questions, opinions and a chance to read previously printed articles, which have been briefed from other Journals. Your nursing associate editor, Miss Gertrude Cromwell, Denver Public Schools, will be at a loss to fill this space unless each nurse helps. As Lyda Smiley, our Association President and nursing leader, says, "I'm a little troubled—the nurses are the last to be heard from." Let us not keep this reputation. Send in contributions, questions you wish answered, articles worthy of printing and new ideas of how you do your work. We will try to use them within a reasonable time in the materials expected from nurses by the editor.

EVALUATION OF HEALTH EDUCATION AND HEALTH SERVICES IN THE LOS ANGELES CITY SCHOOLS*

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and

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PART I

School health programs in the United States have been increasing in scope and cost for more than half a century. The American School Health Association has been a vital factor in giving direction, impetus, and professional standing to the school health movement. In recent years the School Health Section of the American Public Health Association has also been an active force in furthering sound school health policies.

But what are sound policies? School health programs differ from city to city and from community to community. Local conditions determine programs which continue year after year in the same channel with little critical analysis, with an assumption that the designated goals and objectives are being achieved, but without research or appraisal studies which would stand the light of scientific evalution in either scope or depth.

School health administrators oftentimes are guilty of endorsing programs based on many instances of apparent accomplishments or on procedures which have been handed down from the dead hand of the past. Little time and effort are expended in the critical analysis of techniques and procedures of health education and health services.

Many reasons may be given for this lack of program evaluation. The obstacles to effective research in school health, using accepted scientific criteria, are extremely difficult to overcome. How does one demonstrate that children in school systems with adequate school health programs more nearly achieve optimal health than children from communities not so favored, or with different types of programs? Immunization programs lend themselves to statistical conclusions. It is comparatively easy to demonstrate their effectiveness with adequate reporting. Determining improved health status of large numbers of children as a result of a specific health instruction program or because of the remediable defects corrected in the early stages or hypothetically prevented, is something quite different and obviously more difficult, and in most instances it requires years of study.

In 1954, at the suggestion of Dr. Edward B. Johns, Professor of Health Education at the University of California at Los Angeles, the decision was made to undertake an evaluation of the health program in the Los

*Presented by C. Morley Sellery, M.D., F.A.P.H.A., at the First General Session, 33rd Annual Meeting of the American School Health Association in association with the American Public Health Association, October 18, 1959.

Angeles City Schools. Dr. Johns served as consultant to the Los Angeles City Schools Study, and enlarged the program to include a number of school systems in Los Angeles County. The Tuberculosis and Health Association of Los Angeles County extended financial support to the program. In April 1956, because the Los Angeles city and county evaluation studies had increased greatly in scope, it was decided to administer the two programs separately, with Dr. Johns directing the county program and the authors assuming full responsibility for the Los Angeles City Schools program. From the beginning of the studies Dr. Alfred Lewrentz, now retired, Los Angeles City Schools Director of Evaluation and Research, and his successor, Dr. Howard Bowman, were of inestimable service in providing expert advice in the preparation of the various instruments in the study and also in summarizing the data and appraising the validity of any conclusions which were reached.

Almost all of the first year was devoted to considering where to start, what procedures to follow, and what appraisal instruments to use. Studies in other areas of the country were searched for ideas and guidelines.

Very briefly, the following procedures of organization were followed:

1. Presentation of the program to the Superintendent of Schools for his approval and the approval of his administrative staff of division heads.

2. The selection of schools to participate in the study. Through the cooperation of the Superintendent's administrative staff, 54 elementary schools, nine junior high schools, eight senior high schools, and three junior colleges volunteered to participate in the study. These schools represent a sampling of the socioeconomic levels of the population in the Los Angeles City Schools.

3. Orientation of the principals and their staffs with regard to the purpose and importance of the study, and the need for their participation in planning.

4. The appointment of an advisory council to pass on all policies, to approve each study, to review appraisal instruments, to suggest methods and details of administration, to review findings, and to consider conclusions and possible recommendations arising out of the various studies.

5. Appointments of sub-committees to select or devise appraisal instruments for use in the areas approved for study by the advisory council. A total of 37 committees has been necessary to carry out this responsibility in the evaluation studies completed to date.

One of the first decisions made by the advisory council was to determine the degree to which present policies and programs were being carried out in the 74 schools and colleges participating in the evaluation. The reason for this decision was the need to establish a base line for studies in depth or for improvement of certain phases of the school health program. It was recognized that the degree to which programs are carried out in different schools varies in accordance with the interest, enthusiasm, and interpretation of the individual school administrator and his staff. Accordingly, the first appraisal instruments were designed to determine the degree to which the established school health programs were understood, accepted, and carried out in the schools involved in the evaluation.

Because school health programs differ to a certain degree in organization and emphases at the various educational levels, separate instruments

were prepared to appraise the school health programs at the elementary, junior high, senior high, and college levels.

The first four studies were designed

1. to stimulate an overview of the health program in each school at these four levels
2. to provide criteria for appraising the four phases of the school health program; namely, health instruction, health services, healthful environment, and health coordination
3. to point up opportunities in time, materials, and resources for an effective school health program
4. to provide information relative to the strengths and needs in the current health program.

Committees of school personnel were organized to prepare appraisal instruments appropriate to each level. The instruments were administered during the first semester of the 1954–55 school year. The questions were grouped according to the four phases of the school health program, namely, health instruction, health services, healthful school environment, and health coordination. Four types of questions were used: those calling for a simple "yes" or "no" response, those calling for a choice of percent, those calling for a graded response on a scale of one to five, and a few questions requiring free responses.

The directions for use accompanying each appraisal instrument contained the suggestion that responses be recorded by the principal after a conference with all the personnel of the school staff. The directions for use contained a further suggestion that the responses to the questions were to be determined on the basis of an opinion poll of the members of the school staff. Sufficient work copies of the instrument were supplied to the schools so that each staff member might study the questions prior to the conferences with the principal. It was felt that this provision added considerably to the validity of the study by avoiding a one-person's opinion response. Also, it was felt that this procedure increased the in-service education value of the study by acquainting all staff members in each school with the important aspects of the school health program, and by raising questions in their minds as to the degree to which these activities or policies are carried out.

Time and space prevent a detailed discussion of the format and content of each appraisal instrument. Copies are available upon written request.

After reviewing the findings of each of the first four studies, the advisory council reached a number of conclusions and recommendations. Some of these are included in this report to provide information about the effectiveness of the evaluation procedures. The council agreed that an overview of the health program had been achieved, that criteria for appraising the four phases of the school health program had been established, that opportunities for providing an effective program had been outlined, and that strengths and needs had been pinpointed and clarified. The studies revealed weaknesses as well as strengths, and the strengths and weaknesses varied from school to school.

Implications for improving the school health program varied somewhat at the different educational levels, but there were several areas where the conclusions and recommendations were remarkably similar, as follows:

1. In planning and coordinating the health program of the individual school, greater use should be made of health councils and committees with more staff, pupil, and community representation.

2. More use should be made of the school environment in health education experiences, and pupils should be motivated to assume more responsibility in controlling and maintaining a healthful environment.

3. There is urgent need for a teacher's guide in health education at each grade level in elementary school and in subject fields at secondary level, additional teaching aids in health education, more in-service health education, and better over-all planning of the health instruction program.

4. The reports by individual schools in the studies should be used for conferences with appropriate personnel to strengthen the school health program and for in-service education projects.

5. With the approval of the operating superintendents, the appraisal instruments used in these studies should be available to all principals for their administration in evaluating their school health programs.

6. The implications which relate to the need for increased staff should be brought to the attention of the division heads for their serious consideration.

Having completed these first four evaluation studies involving the four educational levels, it was decided by the advisory council as a next step to appoint committees to prepare instruments to evaluate the programs of the various disciplines involved in the school health program. The council believed that in this way it would be possible to determine to what extent and in what way these personnel were contributing to the fulfillment of the objectives of the school health program. It was hoped that strengths and weaknesses would be elicited and improvements initiated. Accordingly, instruments were prepared and administered to appraise the programs of school physicians, nurses, dentists, corrective physical education teachers, health coordinators in the secondary schools and junior colleges, and health chairmen in the elementary schools.

One of the most difficult of the evaluation studies, a long-term study and still incomplete, is the appraisal of the corrective physical education program. This study was limited to pupils with postural defects from "moderately severe" to "severe." There were 2,050 pupils in the study. The physical conditions under corrective procedures were forward head, foot and leg problems, kyphosis, lordosis, scoliosis, and obesity.

After three semesters in corrective physical education classes on the basis of physical examination by the school physician made prior to the enrollment, reexaminations were made. Approximately 15 percent of the 2,050 pupils showed only slight or no improvement, 60 percent showed moderate to much improvement, and 25 percent were considered to have had their defects corrected and therefore were returned to regular physical education classes.

One of the most valuable outcomes of this study has been the development of an appraisal instrument which is being used to keep the records of each pupil in the study. The instrument includes five sections: (a) one for indicating the postural defect to be corrected, and the degree of correction attained each semester; (b) a second section for three photographs, one at the beginning of the first semester, a second at the end of

the second semester, and a final one at the end of the third semester; (c) a third section for measurements of height, weight, body, arm, leg, chest, and waist; (d) a fourth section for individual exercises; (e) and a fifth section for medical findings.

The corrective physical education teachers have found this instrument so valuable that it has been adopted as a standard form by the Corrective Physical Education Section. This form has helped the teachers to focus on the individual problems of pupils and to evaluate progress from semester to semester. The form has been a significant aid in upgrading the quality of the entire corrective physical education program.

Time and space do not permit a description of all the instruments used to evaluate the programs of health personnel and to report the results of the various studies. However, when the studies were summarized and interpreted, the advisory council members were unanimous in the opinion that, as a result of the studies, the staffs of the 74 schools involved had acquired a much more comprehensive view of the functions of the various health personnel and of the relative values of certain routine procedures as compared with more vital functions.

That there was improvement in the understanding of the functions of the school nurses was demonstrated by a follow-up to the original study for evaluating the program of the nurse in the secondary school. The semester following the original study in the 17 secondary schools involved in the evaluation study, a follow-up study was made. The following facts were noted:

(1) The administration had become aware of the possibility of using the nurse's services in the area of counseling pupils with emotional problems and those making poor progress in school.

(2) There had been a definite increase in the use of nursing time for orientation of new teachers and pupils to the health program, and in talks to faculty and PTA groups.

The appraisal instruments for the various health personnel afforded their respective supervisors with an excellent overview of the functions of staff members in relation to the health program in individual schools, and provided guidelines as to areas where greater assistance might be given. In some instances it was indicated that the physical environment and equipment of the health officers needed major improvements in order for the health personnel to function mare adequately. Much light also was thrown on areas where lines of communication needed to be strengthened and better coordination effected. Another finding related to the need for a wider and more effective use of health staff as resource personnel in connection with the health instruction program.

(To be continued)

DENTAL HEALTH EDUCATION WHAT'S THE ANSWER*

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There are as many definitions for health education as there are professional health educators. I have selected one definition and inserted the word "dental" and it reads thus: "dental health education is the sum of our efforts to modify human conduct and attitudes so as to raise the dental health levels of the individuals and of the community." What's the answer? How are we going to modify human conduct and attitudes. There is no specific formula.

School dental programs, although still inadequate in many areas, are growing up, as efforts have been made to (1) reduce the incidence of dental caries by teaching better dental hygiene and giving sodium fluoride treatments, and (2) preserve teeth already carious by systematic and prompt filling of these cavities.

Some school programs take care of children whose parents cannot afford dental care. Other programs have no restrictions and provide prophylaxes, fillings and extractions for all. Orthodontic procedures are rarely included. Usually, the program is started in the lower grades and may be expanded as time permits. It is hoped that, in this way, the amount of dental correction needed is kept at a minimum.

I think it is generally accepted as fact, that in this country one may expect one new carious surface per year in about 98% of our population. Therefore, (and I know this is open for debate) it seems a waste of professional time for a dental hygienist to do dental examinations per se. These examinations, if they insist, might well be carried out as part of the prophylaxis or sodium fluoride program.

As someone has expressed it: "Planning is the 'oil' which enables the program to work smoothly and effectively." Therefore, we should do this planning carefully and with the cooperation of those with whom we work. We can be aided or impeded by our colleagues, depending on their interest and knowledge of our program. I think it is a duty and perhaps a responsibility of the dental profession to help school personnel to better understand the dental health program. Administrators, teachers, and nurses should be on the team with the dental hygienist. They frequently have contacts with parents and the homes of the children. They know their needs, their hopes and their dreams. They should also realize the importance of motivation, of learning by doing, and the importance of self-help in developing and preserving individual dignity. A primary axiom of education is that one must start with the individual as he is now, know what interests him and what makes him think as he does. As a dental health educator, it is extremely important that we know what motivates the individuals we are trying to educate. Adults (and children) act on their wants as they see them, rather than on the dental

*Presented at the 33rd annual meeting of the American School Health Association, Atlantic City, 1959.

health needs as seen by the dental hygienist, nurse or teacher. We should be familiar with the different racial, religious, cultural, social and educational backgrounds of our school children and their parents.

In order to carry out a good dental health program, we must be able to communicate satisfactorily with all these different segments of society in our school population. Words and phrases do mean different things to different people.

As individual problems are multiplied, they become community problems. The community, composed of a large number of different cultures and sub-cultures, has different ways of living, different philosophies of life and different dental health standards. Communication, therefore, becomes increasingly difficult. The population explosion in many areas, as well as migration, means we not longer have fairly simple homogeneous population groups within communities as we had several decades ago. This might be an area for research into the behavioral motivation of communities. We need guide posts to initiate dynamic programs of dental health improvement with the participation and cooperation of the entire community.

Today, the earth's population is increasing at a rate of about 45 million annually, or to put it another way, every year we are adding the population of prewar France to the mass of humanity presently crowding the globe. Although we are concerned about the present, what about the future? Lincoln once said: "I find that the great thing in this world is not so much where we stand, as in what direction we are moving." In dental health education, what direction are we moving? What's the answer?

It is obvious that the school has an unparalleled opportunity for leadership in community education. Surely all "schooling" is not necessarily education. Some of the best education in dental health may be outside of the schools. Therefore, professional competence and willingness of the teaching personnel decides what contribution the school can and will make. Thru cooperative planning and execution of a series of activities, well-trained personnel should be capable of stimulating and guiding the total process of problem solving from the initial "felt need" to a solution and final evaluation in terms of progress made toward the realization of goals.

To what extent do the schools cooperate in such programs? This might well determine whether school staffs and facilities are augmented or whether new agencies or educational departments in other agencies are established to meet compelling needs.

In many areas, we set up our own programs as a separate entity, completely oblivious of all others. Is this the answer?

Could it be that, in dental health education, we are attempting to teach people to act as we act, think as we think, and do what we do because we believe it to be important? I close with this question: Do you think dental health education might be more successful if we made an effort to find out what our school children (and their parents) consider to be important and then develop ways to fit educational activities into their patterns of interest and concern? What's the answer?

NEWS NOTES OF INTEREST

• The American Association of School Administrators voted recently on a resolution expressing unanimous approval of policies which allow teachers to participate in official meetings of major professional organizations. The AASA views such participations as part of the teacher's professional duties.

• An extensive annotated bibliography titled "A Bookshelf on the Social Sciences and Public Health" appears in the April, 1958 *Journal of Public Health*, p. 441–451. The list was compiled by George Rosen and Edward Wellin and is now available in reprint form for 35¢ from the APHA, 1790 Broadway, New York City.

• "Project Talent" is a study which gets underway in March to test the aptitude and ability of 500,000 high school students. The U. S. Office of Education has provided a grant to the University of Pittsburgh to make "the first scientifically planned national inventory of human talents." One out of twenty high schools will be involved in the series of two-day examinations.

• The average American today spends almost one day for each year of his life in a general hospital according to a study reported by the Health Information Foundation and reported in *Progress in Health Service*, October, 1959.

• The Department of Classroom Teachers, NEA, in cooperation with the AAHPER has issued a pamphlet in their Classroom Teachers' Series titled "Teaching Nutrition in the Elementary School" which may be obtained from the AAHPER, 1201 16th St., NW. The cost is 75¢. The authors are Alice Banks and Margaret A. Dunham.

• A comparison of 19th and 20th century life in America by sociologist Seymour M. Lipset is the subject of an article "Constant Values in American Society" which may be read in the November-December, 1959 issue of *Children*, p. 219–224.

• Beginning in 1960 Child Health Day which has been traditionally observed on May 1 since 1928 will now be observed on the first Monday in October so as to link observance of that day with Universal Children's Day.

• According to the "Health Manpower Source Book" prepared by the U.S. P.H.S., the ratio of physicians to the population in the U.S. which has ranged between 131 and 135 per 100,000 persons for the last two decades will drop to 126 by 1975 unless there is a substantial increase of students graduated. The report indicates that even with the addition of eight new dental schools since World War II and an increase in the number of graduates, the ratio of dentists to population is below World War II levels.

• January 1960 is the date set for the beginning of World Mental Health Year sponsored by the World Federation for Mental Health. Five projects which will take three years or more for completion have been outlined. A sum of a quarter of a billion dollars has been set as the amount

to be raised in order to focus scientific attention on the problems of mental health promotion in the world.

• The Children's Bureau is publicizing their recommendation that "every child under one year of age be given a four-way simultaneous vaccination against poliomyelitis, diphtheria, whooping cough and tetanus in addition to the separate vaccination for smallpox.

• The National Education Association Juvenile Delinquency Project has published two guides for teachers, administrators, nurses, social workers, and others who are concerned with the prevention and control of juvenile delinquency. The first report is titled *Delinquent Behavior: Culture and the Individual* ($1.25) and the second guide is focused on *Principles and Practices* ($2.00). Both are available from the NEA, 1201 16th St., N.W., Washington 6, D. C. Dr. William C. Kvaraceus, Boston University, was Director of the project which was initiated September 15, 1958 and completed June 15, 1959.

• A nutrition film designed for junior high school students will be released in January. The thirteen minute film is titled *The Color of Health* and was produced by the AAHPER in cooperation with the American Baker's Association of Chicago. The film has been cleared for television. One print will be made available to each state. For further information readers should contact their State Director of Health, Physical Education, and Recreation as to the availability of the film.

• A $90,000 study designated as the Greater Columbus Area Educational Television Project has been made possible by a grant from the Ford Foundation, Fund for Advancement of Education with a matching contribution of service, personnel and facilities by the Ohio State University, the State Department of Education, and the Columbus Public Schools. Included in the Study to evaluate the effectiveness of televised instruction is the eighth grade Health Science course in the Columbus public schools and the required Health Education 400, Hygiene course, at the Ohio State University. Thirty class sections will receive the telecast program by the University station while ten class sections will have non-TV instruction in Health Education 400. Mary K. Beyrer, assistant professor of health education at the University is coordinator of the University health education television project. Robert Kaplan, assistant professor of physical education, is the television teacher. The lessons are being recorded on videotape. The Bureau of Educational Research at the University is undertaking the evaluation of the study.

• *Food, The Yearbook of Agriculture*, 1959 has 736 pages devoted to every phase of nutrition. The publication may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. for $2.25. Individuals in the less populated states may find that their Congressman still has some complimentary copies available.

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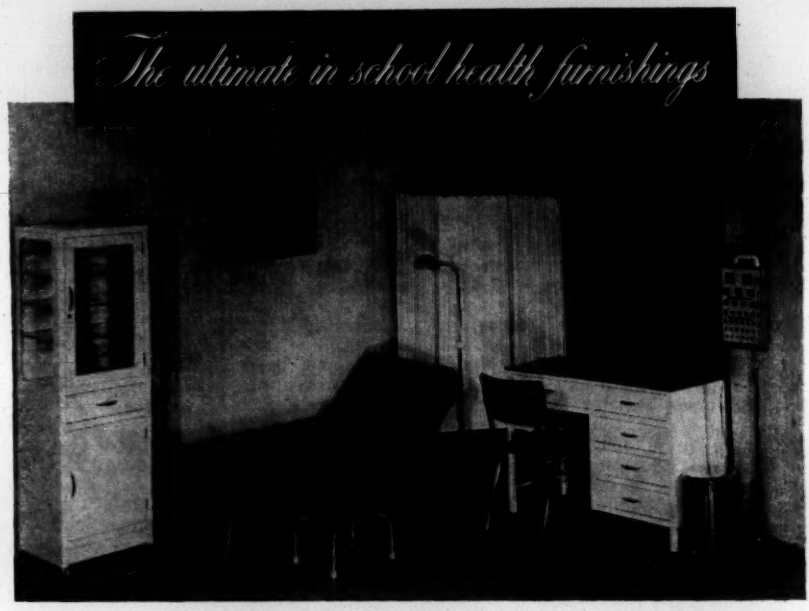

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